

WHAT IS CLAIMED IS:

1. A microscope optical system comprising:
an objective lens; and
an intermediate magnification varying part
5 disposed just after the image side of said objective
lens.

2. A microscope optical system according to
claim 1, wherein,
10 said intermediate magnification varying part
includes a lens group having a positive refractive
power and a lens group having a negative refractive
power, and
in a high magnification variation state, said
15 lens group having a positive refractive power is
disposed just after the image side of the objective
lens, while in a low magnification variation state,
said lens group having a negative refractive power is
disposed just after the image side of the objective
20 lens.

3. A microscope optical system according to
claim 2, wherein said intermediate magnification
varying part is constructed in such a way that its
25 optical system is rotatable with an axis
substantially orthogonal to an optical axis being a
rotation axis.

4. A microscope optical system according to
claim 3, wherein said microscope optical system is
provided with a connecting portion on the image side
5 of said intermediate magnification varying part and
the microscope optical system can be connected with a
body of a microscope by means of said connecting
portion.

10 5. A microscope optical system according to
claim 1, wherein said intermediate magnification
varying part is constructed in such a way that its
optical system is rotatable with an axis
substantially orthogonal to an optical axis being a
15 rotation axis.

6. A microscope optical system according to
claim 1, wherein said microscope optical system is
provided with a connecting portion on the image side
20 of said intermediate magnification varying part and
the microscope optical system can be connected with a
body of a microscope by means of said connecting
portion.

25 7. A microscope optical system according to
claim 2, wherein a magnification in said high
magnification variation state is α and a

magnification in said low magnification variation state is $1/\alpha$.

8. A microscope optical system according to
5 claim 4, wherein said magnification α satisfies $1.25 \leq \alpha \leq 2.5$.

9. A microscope optical system according to
claim 2, wherein said microscope optical system is
10 provided with a connecting portion on the image side
of said intermediate magnification varying part and
the microscope optical system can be connected with a
body of a microscope by means of said connecting
portion.

15 10. A microscope optical system according to
claim 7, wherein said microscope optical system is
provided with a connecting portion on the image side
of said intermediate magnification varying part and
20 the microscope optical system can be connected with a
body of a microscope by means of said connecting
portion.

25 11. A microscope optical system according to
claim 8, wherein said microscope optical system is
provided with a connecting portion on the image side
of said intermediate magnification varying part and

the microscope optical system can be connected with a body of a microscope by means of said connecting portion.

5 12. A microscope objective lens comprising, in the following order from the object side, a first lens group and a second lens group, wherein:

10 said first lens group includes a positive meniscus lens with the concave surface facing the object side and one or more cemented lenses, said first lens group having a positive refractive power as a whole;

15 at least one of said cemented lenses includes a lens made of a material having an Abbe's number equal to or larger than 80; and

the following conditions are satisfied:

$$0.3 \leq \text{wd}/f \leq 0.45$$

$$0.6 \leq \text{NA}$$

20 where, f represents the focal length of said microscope objective lens as a whole, wd represents the working distance of said microscope objective lens, and NA represents the numerical aperture of said microscope objective lens.

25 13. A microscope objective lens according to claim 12, wherein said microscope objective lens has a magnification of 20x.

14. A microscope objective lens according to
claim 13, wherein at least one of said cemented
lenses comprises a cemented lens composed of three
5 lens elements.

15. A microscope objective lens according to
claim 14, wherein said lens made of a material having
an Abbe's number equal to or larger than 80 is made
10 of fluorite.

16. A microscope objective lens according to
claim 12, wherein at least one of said cemented
lenses comprises a cemented lens composed of three
15 lens elements.

17. A microscope objective lens according to
claim 16, wherein said lens made of a material having
an Abbe's number equal to or larger than 80 is made
20 of fluorite.

18. A microscope objective lens according to
claim 13, wherein said lens made of a material having
an Abbe's number equal to or larger than 80 is made
25 of fluorite.